MTS Criterion® Series 60 Static-Hydraulic Universal Test Systems

High-performance monotonic testing solutions for research, development and manufacturing

be certain.
THE MTS CRITERION FAMILY OF UNIVERSAL TEST SYSTEMS

combines high-performance load frame technology, easy-to-use MTS TESTSUITE™ TW software, and a full complement of test accessories to address the monotonic testing demands of a diverse spectrum of users, ranging from the pioneering researcher to the high-volume manufacturer.
MTS Criterion Universal Test Systems
Extending MTS testing expertise, technology leadership and unmatched global support across a full spectrum of monotonic testing environments

MTS Criterion systems leverage decades of MTS mechanical testing expertise, technology leadership and unmatched global support to provide accurate and repeatable monotonic testing across a full spectrum of laboratory and industrial settings.

Versatile, high-performance MTS Criterion systems perfectly complement MTS dynamic test solutions to help meet the unique and evolving needs of pioneering materials researchers and developers. Highly reliable and competitively priced, they are also ideal for meeting the robust quality compliance and uptime demands of high-volume manufacturing and product development environments.

Proven MTS leadership & commitment
MTS is a leading global supplier of mechanical test and simulation solutions. Precision MTS force and motion control technologies and unrivaled testing expertise are integral to the research and development of materials, components and structures across a diversity of industries and fields. The introduction of the MTS Criterion family is the product of our investment into sustainable, globally-compliant hardware and software platforms and a testimony to MTS’ continuing commitment to the advancement of materials testing worldwide.

Comprehensive offering
The MTS Criterion family integrates high-resolution MTS controls, a broad portfolio of electromechanical and static-hydraulic load frames, and a full complement of high-quality test accessories. Easy-to-use MTS TestSuite TW software and a large and growing library of test templates extend the utility of these systems across a wide range of applications, including tension, compression, flex/bend and shear tests on specimens such as:

- Metals
- Composites
- Polymers
- Construction materials
- Wood and paper products
- Biomedical products
- Fibers and textiles
- Adhesives and coatings
- Foam
- and more

Unmatched sales, service and application support
MTS Criterion Systems can be rapidly configured, delivered and set up to quickly meet specific testing requirements. These systems are backed by the global MTS Service & Support organization, a highly experienced team committed to providing test application and systems integration expertise, as well as maintaining system uptime and operational efficiency.

Contact MTS today and explore how high-performance MTS Criterion Universal Test Systems can enhance the flexibility and efficiency of your research, development or manufacturing testing.
Tightly Integrated Monotonic Solutions for Your Specific Testing Environment

Combining the latest in MTS mechanical testing innovation

MTS Criterion Systems integrate the latest MTS hardware and software platform innovations with an expanding selection of test accessories to deliver highly accurate and repeatable monotonic testing for exacting materials research or demanding, high-volume manufacturing QA/QC.

A complete portfolio of universal load frames

The MTS Criterion family includes a comprehensive line of robust Series 60 Static-Hydraulic load frames for performing accurate and repeatable monotonic testing on specimens ranging from sheet metal to high-strength structural steel to reinforced concrete. Available in numerous, high-stiffness configurations, these frames feature high-resolution MTS digital controls and powerful servocontrolled hydraulic actuation to provide high-speed, low vibration testing across a very broad range of force capacities. MTS Criterion load frames comply fully with the latest global safety directives, including:

- MACHINERY 2006/42/EC
- LOW VOLTAGE 2006/95/EC
- EMC Directive 2004/108/EC
- GOST-R
State-of-the-art MTS testing technology

MTS Criterion Systems integrate numerous MTS testing innovations to maximize test fidelity, operational efficiency, ease-of-use, safety and maintainability:

» High-resolution MTS digital controllers deliver high-speed, closed-loop control and data acquisition for higher fidelity test data and more meaningful analysis.

» Precision MTS load cells offer high stiffness, overload and side load protection, and TEDS self-identification capabilities.

» Convenient, ergonomic handsets provide full system control at the test space for streamlined setup.

» The innovative Integrated Operations Platform combines an operator interface, system electronics and controls, and hydraulic power unit into a compact, ergonomic and easy-to-maintain module that is ideal for demanding industrial environments.

» Full-featured test area enclosures with Integrated Control Pods and automated safety features help ensure operator well-being and full compliance with the latest international safety directives.

» Durable, easy-to-maintain protective rubber matting extends the life and enhances the maintainability and utility of system test spaces.

Easy-to-use MTS TestSuite TW Software

The latest addition to the growing MTS TestSuite platform, MTS TestSuite TW software delivers the versatile array of test definition, analysis and reporting capabilities required to address the evolving needs of advanced researchers, as well as the intuitive operator interface, selectable multi-language capabilities, and growing host of test templates needed to establish and sustain standard, industry-compliant manufacturing quality testing.

A full complement of test accessories

MTS Criterion System users can draw upon an extensive offering of grips and fixtures, environmental simulation systems and extensometers to address standard and custom test requirements across a full spectrum of monotonic materials testing applications, including tension, compression, flex/bend and shear, peel, tear creep, stress and more.
Engineers and researchers worldwide rely on MTS for the testing technology and expertise required to pursue research and development of the next generation alloys, ceramics, composites and polymers so critical to the futures of industries such as aerospace, power generation, ground transportation and biomedical. High-performance MTS Criterion systems are engineered to support these critical endeavors by enhancing the overall flexibility and efficiency of a research and development test lab.

**Cost-efficient monotonic solutions**

MTS Criterion systems provide research and development labs with a cost-efficient means to augment and extend the utility of their most valuable testing equipment and resources. Capable of delivering highly accurate and repeatable tension, compression, flexure and other basic tests, these systems free up high-demand dynamic systems for more complex evaluations. Additionally, MTS Criterion systems employ the same MTS TestSuite software platform, and can share many of the same high-quality accessories, utilized by dynamic MTS Landmark® servohydraulic test systems.

**Versatile, high-performance hardware & software**

The MTS Criterion family comprises an array of versatile, high-performance components to meet the exacting test needs of advanced researchers and help them adapt readily to evolving demands. This array includes a broad selection of configurable load frame hardware, high-resolution controls, a customizable software toolset, and a full complement of precision grips, fixtures, extensometers and environmental simulation systems.

**MTS application expertise**

MTS Criterion systems are backed by the global MTS Service & Support organization, which is capable of providing the test application and systems integration expertise needed to optimize test system effectiveness and mitigate the risks of pursuing unique or complex custom test applications.
The comprehensive MTS Criterion family is also ideal for meeting rigorous quality compliance and uptime demands across a broad range manufacturing and product development environments.

**Comprehensive offering**

The comprehensive MTS Criterion offering features all the components needed to tailor the right monotonic testing solution for any manufacturing QA/QC or product development needs. The broad selection of optimized load frame hardware, growing library of standards-compliant templates, and full complement of test accessories can be quickly and seamlessly integrated to deliver highly accurate and repeatable monotonic testing of products ranging from metals to polymers and construction materials to textiles.

**Rugged, reliable hardware**

Durable, high quality MTS Criterion load frames are built to operate reliably within harsh industrial environments, and are designed to be easily maintained. Additionally, MTS Criterion systems are backed by the global MTS Service & Support organization, a highly experienced team committed to maintaining system uptime and operational efficiency.

**Cost-efficient, productive test platforms**

Competitively priced MTS Criterion systems integrate numerous design innovations to optimize test fidelity, operational efficiency, ergonomics and maintainability. They can be rapidly configured, delivered and set up to quickly meet the specific goals of any testing program. Ease-of-operation, adherence to worldwide safety and ergonomics directives, and a selectable, multi-language MTS TestSuite TW testing interface make MTS Criterion systems an excellent foundation for establishing and sustaining global, standardized test procedures.

**Integrated safety features**

To help ensure operator well-being and comply with international safety and directives, MTS Criterion systems integrate a variety of safety features, including a full complement of integrated and isolated test space enclosures, mechanically adjustable crosshead limits, motor overheat protection, and more.
MTS Criterion Series 60 systems perform accurate and reliable tension and compression tests of high-strength specimens in a wide range of shapes and sizes. These robust test systems employ reliable MTS servocontrolled hydraulic actuation and high-speed, digital closed loop controls to test in load, displacement or strain control at force capacities ranging from 300 kN to 1000 kN. Series 60 systems are available in a variety of high-stiffness 6-column load configurations, all supported by a compact and ergonomic Integrated Operations Platform. Easy-to-use MTS TestSuite TW software, a large and growing library of standards-compliant test templates, and full complement of accessories extend the utility of these systems across a full spectrum of high-strength metals and construction materials, including:

- Sheet metal
- Plate metal
- Bar metal
- Fasteners
- Wire and cable
- Chain
- Piping and tubing
- Structural steel
- Rebar
- Welds
- Castings
- Forgings
- Structural components
- Rock and concrete
- Pavement
- Fasteners (non-metal)
- Wire and cable (non-metal)
- Rebar (non-metal)

**Series 60 System Key Features**

- High-stiffness 6-column load frame configurations
- Reliable MTS servocontrolled hydraulic actuation
- High-resolution, digital closed loop controls
- Convenient, test setup and control handsets
- Versatile, easy-to-use MTS TestSuite TW software with standards-compliant template library (ASTM, ISO, DIN, EN, BS, and more)
- Complete selection of grips, fixtures, environmental systems and extensometers
- Compact and ergonomic Integrated Operations Platform
- Standard Dual Zone Test Space for reducing setup time
  - Tension on top
  - Compression on bottom
- Non-step loading
- "Quick Return" hydraulic valve for higher throughput
- Automatic limit checking of crosshead position, overload, over temperature, over voltage, etc.
- Optional EU-compliant Isolated Safety Enclosure
- Durable test space protection
- Easy-to-access maintenance panels
Model 64.305

**LOAD FRAME CONFIGURATION:** 6-column, servocontrolled hydraulic

**RATED FORCE CAPACITY:** 300 kN

**TEST SPACE:** dual zone (tension on top, compression on bottom)

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Model 64.605

**LOAD FRAME CONFIGURATION:** 6-column, servocontrolled hydraulic

**RATED FORCE CAPACITY:** 600 kN

**TEST SPACE:** dual zone (tension on top, compression on bottom)

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Model 64.106

**LOAD FRAME CONFIGURATION:** 6-column, servocontrolled hydraulic

**RATED FORCE CAPACITY:** 1000 kN

**TEST SPACE:** dual zone (tension on top, compression on bottom)

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Model 64.206

**LOAD FRAME CONFIGURATION:** 6-column, servocontrolled hydraulic

**RATED FORCE CAPACITY:** 2000 kN

**TEST SPACE:** dual zone (tension on top, compression on bottom)
### MTS Criterion Series 60 Specifications - Comparative

<table>
<thead>
<tr>
<th></th>
<th>Model 64.305</th>
<th>Model 64.605</th>
<th>Model 64.106</th>
<th>Model 64.206</th>
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</thead>
<tbody>
<tr>
<td><strong>Rated Force Capacity</strong></td>
<td>kN</td>
<td>300</td>
<td>600</td>
<td>1000</td>
</tr>
<tr>
<td></td>
<td>lbf</td>
<td>67,500</td>
<td>135,000</td>
<td>220,000</td>
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<tr>
<td><strong>Column Configuration</strong></td>
<td>Column Number</td>
<td>6</td>
<td>6</td>
<td>6</td>
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<tr>
<td><strong>Test Zones</strong></td>
<td>Single/Dual</td>
<td>Dual</td>
<td>Dual</td>
<td>Dual</td>
</tr>
<tr>
<td><strong>Actuator (Piston) Stroke</strong></td>
<td>mm</td>
<td>150</td>
<td>200</td>
<td>250</td>
</tr>
<tr>
<td></td>
<td>in</td>
<td>5.91</td>
<td>7.87</td>
<td>9.84</td>
</tr>
<tr>
<td><strong>Actuator (Piston) Speed</strong></td>
<td>mm/min</td>
<td>0.5 - 180</td>
<td>0.5 - 140</td>
<td>0.5 - 90</td>
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<tr>
<td></td>
<td>in/min</td>
<td>0.02 - 7.08</td>
<td>0.02 - 5.51</td>
<td>0.02 - 3.54</td>
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<tr>
<td><strong>Crosshead Speed</strong></td>
<td>mm/min</td>
<td>220</td>
<td>210</td>
<td>200</td>
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<tr>
<td></td>
<td>in/min</td>
<td>8.66</td>
<td>8.27</td>
<td>7.87</td>
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<tr>
<td><strong>Column Spacing (test space width)</strong></td>
<td>mm</td>
<td>410</td>
<td>435</td>
<td>530</td>
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<td></td>
<td>in</td>
<td>16.1</td>
<td>17.1</td>
<td>20.9</td>
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<tr>
<td><strong>Tension Test Space</strong></td>
<td>Standard Length</td>
<td>mm</td>
<td>30-525</td>
<td>30-750</td>
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<td></td>
<td>Standard Length</td>
<td>in</td>
<td>1.18-20.66</td>
<td>1.18-29.52</td>
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<tr>
<td></td>
<td>Extended Length</td>
<td>mm</td>
<td>30-900</td>
<td>30-1100</td>
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<td>Extended Length</td>
<td>in</td>
<td>1.18-35.43</td>
<td>1.18-43.3</td>
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<tr>
<td><strong>Compression Test Space</strong></td>
<td>Standard Length</td>
<td>mm</td>
<td>105-600</td>
<td>110-830</td>
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<td></td>
<td>Standard Length</td>
<td>in</td>
<td>4.13-23.6</td>
<td>4.33-32.7</td>
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<tr>
<td></td>
<td>Extended Length</td>
<td>mm</td>
<td>135-980</td>
<td>160-1230</td>
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<td></td>
<td>Extended Length</td>
<td>in</td>
<td>2.31-38.58</td>
<td>6.30-48.4</td>
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<td><strong>Diameter of Round Specimens</strong></td>
<td>mm</td>
<td>6 - 32</td>
<td>10 - 40</td>
<td>15 - 55</td>
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<tr>
<td></td>
<td>in</td>
<td>0.24 - 1.26</td>
<td>0.39 - 1.57</td>
<td>0.59 - 2.17</td>
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<tr>
<td><strong>Thickness of Flat Specimens</strong></td>
<td>mm</td>
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<td>2 - 30</td>
<td>2 - 40</td>
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<tr>
<td></td>
<td>in</td>
<td>0.08 - 0.98</td>
<td>0.08 - 1.18</td>
<td>0.08 - 1.57</td>
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<td><strong>Minimum Specimen Length</strong></td>
<td>mm</td>
<td>195</td>
<td>216</td>
<td>315</td>
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<td></td>
<td>in</td>
<td>7.68</td>
<td>8.50</td>
<td>12.40</td>
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<td><strong>Compression Platens</strong></td>
<td>mm</td>
<td>150 x 150 (square)</td>
<td>150 x 150 (square)</td>
<td>220 x 220 (square)</td>
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<td></td>
<td>in</td>
<td>5.91 x 5.91 (square)</td>
<td>5.91 x 5.91 (square)</td>
<td>8.66 x 8.66 (square)</td>
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<tr>
<td><strong>Frame Height</strong></td>
<td>Standard Length</td>
<td>mm</td>
<td>2074</td>
<td>2390</td>
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<td></td>
<td>Standard Length</td>
<td>in</td>
<td>81.7</td>
<td>94.1</td>
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<td></td>
<td>Extended Length</td>
<td>mm</td>
<td>2470</td>
<td>2780</td>
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<td></td>
<td>Extended Length</td>
<td>in</td>
<td>97.2</td>
<td>109.5</td>
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<td><strong>Frame Width</strong></td>
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<td>1170</td>
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<tr>
<td></td>
<td>in</td>
<td>34.3</td>
<td>46.1</td>
<td>51.8</td>
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<td><strong>Frame Depth</strong></td>
<td>mm</td>
<td>725</td>
<td>800</td>
<td>910</td>
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<tr>
<td></td>
<td>in</td>
<td>28.5</td>
<td>31.5</td>
<td>35.8</td>
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<tr>
<td><strong>Frame Weight</strong></td>
<td>Standard Length</td>
<td>kg</td>
<td>1950</td>
<td>3150</td>
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<td></td>
<td>Standard Length</td>
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<td></td>
<td>Extended Length</td>
<td>lb</td>
<td>4416</td>
<td>7174</td>
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* Total tension test space is the distance from the grip end with the actuator fully retracted.
** Total compression test space is the distance from the base plate to the compression grip adapter face.
**Force Accuracy*** | ± 0.5% of applied force | ± 1.0% of applied force
---|---|---
**Force Range** | 1% - 100% of rated force capacity | 0.5% to 1% of force rated capacity
**Displacement Resolution** | 0.2 um (0.00000787 in) |
**Displacement Accuracy** | +/- 1% of indicating |
**Strain Accuracy*** | ± 0.5% of applied strain |
**Security Protection** | Over-force, travel limits, oil pressure, over-temperature, over-voltage and others |
**Over Force Protection** | 110% |
**Data Acquisition Rate** | 1000 Hz |
**Control Loop Rate** | 1000 Hz |
**Environmental Requirements**
- **Operating Temperature Range** | 5 to 40°C | 41 to 104°F |
- **Operating Humidity** | 5 - 85% Non-condensing |
- **Storage Temperature Range** | -18 to 49°C | 0 to 120°F |
- **Maximum Storage Humidity** | 90% Non-condensing |
- **Maximum Altitude** | 2000 Meters |
**Integrated Operations Platform (IOP) Power Requirements** | 400 V 50 Hz / 480 V 60 Hz V AC (3 phase) |
**IOP Dimensions**
- **mm** | 1040 x 720 x 1900 |
- **in** | 38.58 x 28.35 x 74.8 |
**IOP Weight**
- **kg** | 400 |
- **lb** | 881.85 |

*Applicable onsite calibration services are available to meet ISO 7500-1, ASTM E4.

**Exceptions apply. See your local MTS contact.

***Extensometer calibration services are available to meet ISO 9513, ASTM E83.

**Shipping Information**

<table>
<thead>
<tr>
<th>Standard Length Frame</th>
<th>Model 64.305</th>
<th>Model 64.605</th>
<th>Model 64.106</th>
<th>Model 64.206</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensions - Crated</strong></td>
<td>mm</td>
<td>2400 x 1536 x 1326</td>
<td>2780 x 1690 x 1350</td>
<td>3100 x 1800 x 1520</td>
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<td><strong>Dimensions - Crated</strong></td>
<td>in</td>
<td>95 x 61 x 52</td>
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<table>
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<tr>
<td><strong>Dimensions - Crated</strong></td>
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<td>3510 x 1800 x 1520</td>
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<tr>
<th>Integrated Operations Platform</th>
<th>Model 64.305</th>
<th>Model 64.605</th>
<th>Model 64.106</th>
<th>Model 64.206</th>
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<tbody>
<tr>
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<td>1220 x 940 x 2330</td>
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<td><strong>Dimensions - Crated</strong></td>
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<td><strong>Weight - Crated</strong></td>
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</tr>
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<td><strong>Weight - Crated</strong></td>
<td>lb</td>
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MTS TestSuite Software
Efficient and versatile software for productive materials and component testing

MTS TestSuite TW software facilitates the accurate and repeatable mechanical testing of materials, components and finished goods. It provides the versatility required to address unique and complex test requirements, along with the ease-of-operation required for efficient QA/QC testing. With this software, test engineers will have utmost flexibility to create and run tests, analyze data and report results in a way that matches their specific mechanical testing needs, now and well into the future.

The MTS TestSuite TW Software family
Comprises a set of applications and templates that can bundled together to meet specific test program or organization needs.

**TW Elite** is the engine that drives all the MTS TestSuite TW offerings. It includes all the test definition capacity and flexibility test designers need to create and edit custom test sequences while accommodating the specific runtime needs of lab personnel.

**TW Express** is designed for the test operator and is used to run tests created with TW Elite. This application allows the operator to easily execute even the most complex tests and monitor data or calculated values in runtime views that can be tailored by both test designers and operators.

**Reporter Add-In** for report design and generation, there is a Reporter Add-In for use with Microsoft Excel® that allows the easy organization of raw data and creation of impressive reports with little time investment or manual intervention.

**Templates** from the straightforward test to the extremely complex calculation, MTS test templates offer a wide array of solutions to reduce test creation time, streamline test execution and support adherence to testing standards. Four types of template solutions are available to meet a range of testing needs:

» **BASE TEMPLATES** are included with the software application and include five tensile, two flex, five peel/tear, and three compression templates that may be modified to meet specific needs.

» **ADVANCED PRE-PACKAGED TEMPLATES** make it fast and simple to run tests according to ASTM, ISO and EN standards. Purchased individually or in application-specific bundles, they also can be modified to meet unique requirements.

» **MTS CUSTOM TEMPLATES** are available for the most complex or challenging test applications. Users can turn to MTS experts for custom test template development, saving valuable test engineering time and resources.

» An integrated **METHOD CONVERTER** automatically converts TestWorks® software test methods to TW templates for use with MTS TestSuite TW software.

**Efficient test definition**
MTS TestSuite TW Elite software makes it easier than ever to design a test. Its user-friendly interface and features simplify the creation, customization and sharing of templates for everything from routine to custom testing. Technicians will be empowered to efficiently define parameters for the full complement of standard material tests, including peel, tear, sheer, tensile, compression, creep, cyclic and strain. There are four quick and easy ways to create tests.

1. Use or modify a base or advanced pre-packaged test template
2. Convert an existing TestWorks 4 software method
3. Design your own test or template
4. Have MTS design a Custom Test Template
Simple test execution

Runtime operation has never been so simple. To execute a test, operators simply choose a test and then follow the easy-to-understand interactive menus. The configurable test monitor allows for superior control and versatility once testing begins. A convenient toolbox displays all required elements in a single location, with tabs that allow users to select from multiple views to productively manage what the user will see while the test is running. The Test Editor view enables simple real-time monitoring of test progress, clearly identifying finished activities from current activities and those that have not yet begun.

Robust analysis

MTS TestSuite TW software features robust capabilities for interacting numerically and graphically with post-test data. You will get the most from your test results with intuitive displays and flexible, interactive data plots, and have full freedom to explore “what if” scenarios by adding variables, calculations, tables or charts. Integrated analysis tools include movable markers, text, and construction lines, and the ability to define a region of interest and easily zoom in for closer inspection. You can even contrast multiple graphs of the same post-test data simultaneously for deeper insight into test specimen properties.

Flexible reporting

MTS TestSuite TW software equips users with flexible tools for presenting and sharing test data through detailed runtime reports. They can output results directly via a user-friendly standard report template, or employ the MTS TestSuite Reporter Add-In for Microsoft® Excel® to create custom reports as a process independent from testing itself.
A Full Complement of Test Accessories
Choose the right mix of for your specific testing needs

Grips, platens & fixtures

The MTS Criterion family is complemented by several optimized lines of grips, fixtures and platens to meet a full spectrum of monotonic testing needs.

MTS Criterion Series 60 systems are complemented by a growing line of accessories to meet a full spectrum of monotonic testing needs. These include affordable grips, fixtures and platens for standard monotonic testing of metals, construction materials, composites, fasteners and more.

Furnaces

MTS furnaces are ideal for conducting tension, compression, bend and cyclic fatigue testing of metals, composites and ceramics at high temperatures. A center-split design facilitates easy specimen and fixture access, and mounting brackets are available for a variety of MTS and non-MTS load frames.

Precision extensometers

MTS offers the world’s most comprehensive and highest-performing array of strain and displacement measuring tools for monotonic materials and component testing. This array includes displacement gages, a variety of axial, diametral, cross-sectional and biaxial extensometers, and a selection of both laser and video non-contacting solutions.
State-of-the-art MTS Testing Technology
Optimizing test fidelity, operational efficiency, ease-of-use, safety and maintainability

Integrated operations platform

Unique to Series 60 Static-Hydraulic Systems, the new Integrated Operations Platform consolidates the operator interface, system electronics and controls, and hydraulic power supply into a single compact, mobile unit. Ideal for demanding industrial environments, this unit includes a conditioned internal environment to protect components and enhance system maintainability. Ergonomic, centralized controls, a noise-dampening enclosure, and a tidy cabling/hose management system help ensure operator safety and well-being.

A) Compact and mobile protective cabinet
   - Environmental conditioning
   - Noise damping
   - Maintenance friendly access panels and doors

B) System computer and electronics

C) Ergonomic user interface

D) High-resolution, closed loop digital controller

E) Hydraulic power supply

F) Managed cabling/hose system
State-of-the-art MTS Testing Technology
Optimizing test fidelity, operational efficiency, ease-of-use, safety and maintainability

High-resolution digital controllers
MTS digital controllers deliver high-speed, closed loop control and an industry-leading 1,000 Hz data acquisition rate. This capacity allows you to generate higher resolution test data for more meaningful analysis, achieve higher fidelity across test runs, and gain statistically significant test samples more quickly and efficiently. MTS digital controllers integrate seamlessly into Series 60 Integrated Operations Platforms.

- 1000 Hz control loop rate
- Up to 1000 Hz data acquisition rate
- 20-bit resolution
- Built-in USB 2.0 for PC communication
- Self-ID capability for calibration and auto-ranging
- Two optional strain inputs in addition to the system load cell
- Two BNC monitor connectors
- Test area enclosure interlock connector

Precision, TEDS-enabled loads cells
Highly accurate MTS load cells are designed to offer high stiffness and stability with low non-linearity. They provide overload and side load protection and are designed with built-in shunt resistors to facilitate regular verification of accuracy using calibration routines featured in MTS software. To increase efficiency and reduce potential operator error, they feature TEDS (Transducer Electronic Data Sheets) self-identification capabilities that follow the recently adopted IEEE 1451.4 standard. This enables an MTS Criterion System to automatically detect installed load cells and download specific calibration information.

Convenient, ergonomic handsets
MTS handsets facilitate streamlined test setup by enabling operators to perform standard system control functions such as start, stop, pause, and crosshead positioning while standing close to the test specimen. The handset can display test status messages, system performance messages, and test results. Two programmable function keys are set up in the software as digital inputs, allowing users to define test functions such as start test, pause and hold position. The handset features a compact, ergonomic design for both right-handed and left-handed operators and a large text display that provides information at a glance.
Globally-compliant system safety features

To help ensure operator well-being and full compliance with the latest international safety directives, MTS Criterion Series 60 Systems are designed to accommodate a variety of safety features, including:

- A full complement of isolated test space enclosures
  - Automatic, low-velocity travel when the enclosure door is open
  - Integrated test space enclosure interlocks
  - Integrated Control Pod
    1. System Status Light—indicates whether the load frame drive is energized and ready for testing
    2. E-Stop
    3. Test Control Handset
    4. Specimen Setup Handset
- Mechanically adjustable limits to stop the crosshead at predetermined points
- Motor overheat device to automatically turn off the motor power supply
- Ability to set limits for load, extension, strain, or any other data channel

Durable, easy-to-maintain test space

MTS Criterion Systems feature durable, protective rubber matting to extend the life and enhance the maintainability and utility of the system test space. Both Series 40 and Series 60 systems feature heavy work surface mats, which are designed to protect the load frame base and facilitate easy test space cleanup and maintenance. Work surface mats feature molded edges to prevent tools from rolling off and an integrated groove pattern to channel away spills and debris. Series 60 systems feature grip cavity mats and wedge covers to protect grip/fixture interfaces.
Unmatched MTS Service & Support
Committed to maximizing test system uptime and operational efficiency

MTS Criterion Systems are backed by the global MTS Service & Support organization. This highly experienced team offers lifecycle management services for all your test systems and is committed to maximizing the uptime and operational efficiency of your test system. With the expertise to support your test equipment from pre-installation to decommission, and at every point in between, MTS has the service solutions to meet your needs for test schedule predictability, data integrity, system performance optimization and budget management.

Onsite services
MTS builds the most rugged test solutions available, but constant motions and forces applied to test specimens ultimately take their toll. Our field service engineers have a worldwide reputation for applications expertise, and will respond to your request for support or repair quickly and efficiently. MTS can also assist with installation or movement of lab equipment. Our service team can help you properly disassemble the equipment, pack it for transportation and install it at a new location. In addition, we offer consumables and spare parts for new-generation MTS equipment and most of our legacy systems.

Engineering services
MTS offers a complete set of professional engineering services, including systems engineering, test consulting and facilities design services. MTS experts will listen to your test objectives, analyze your situation, and translate your desires to specific system requirements. Leveraging years of application expertise, MTS will engineer the right solution that meets your testing needs and business conditions. We can provide test designs, fixture engineering, control system evaluation, data collection and results analysis. By referencing the best practices of test labs worldwide, MTS can help you design test facilities, including hydraulic distribution systems, and recommend long-range lab investment plans that support your business growth strategies or research plans.

Extensometer Calibration
Load Frame Alignment
Training

MTS training programs are designed to improve operator efficiency and optimize system performance. Expertly led and completely customizable, the courses provide hands-on learning to make sure your staff is thoroughly familiar with your test systems and know how to operate them effectively. In addition to a broad selection of standard courses, MTS can customize courses to meet your specific lab needs and deliver the training at our Training Center or your workplace.

Calibration & alignment

All test labs must calibrate their testing equipment to help ensure data accuracy, and MTS provides top-quality, accredited calibration services. We can complete calibration at your location, or in our factory metrology labs. We also offer a range of services, including load frame alignment services, designed to help minimize data variance.

Maintenance & monitoring

Making sure that equipment is operating at full capacity and test projects are completed on time without interruption are important aspects of test lab management. Based on service experiences accumulated over decades, MTS has a set of well-defined routine maintenance offerings tailored for specific systems and components, to help extend equipment life and provide you with confidence in your equipment operation. We also offer sophisticated assessment tools to better understand equipment condition and anticipate potential issues before they become larger problems.

Upgrade solutions

As technology improves, an upgrade is often the most economical way of expanding your lab capabilities and extending the life of existing test equipment. MTS offers upgrades and replacements for all areas of your test system: mechanical components, controllers and software. Our Software Maintenance Enhancement and Support (ME&S) agreements make it easy to stay current with rapidly changing software technology. Within your contract period, you will automatically receive updates to all software covered in your contract.